

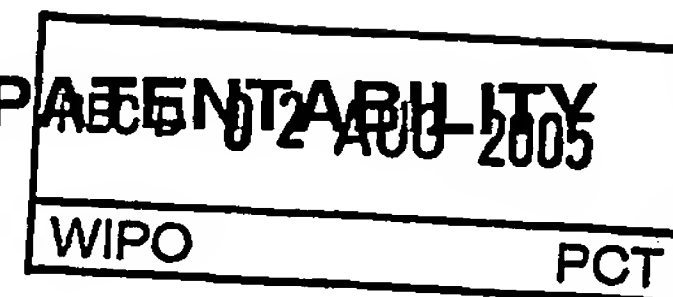
PATENT COOPERATION TREATY


PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)



Applicant's or agent's file reference PF030062		FOR FURTHER ACTION		See Form PCT/IPEA/416
International application No. PCT/EP2004/050564		International filing date (day/month/year) 19.04.2004		Priority date (day/month/year) 17.04.2003
International Patent Classification (IPC) or national classification and IPC H04N7/173				
Applicant THOMSON LICENSING S.A. et al.				
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 8 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau) a total of 6 sheets, as follows:</p> <p style="margin-left: 40px;"><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p style="margin-left: 40px;"><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>				
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>				
Date of submission of the demand 15.10.2004		Date of completion of this report 01.08.2005		
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized Officer DE LA PENA ALVAREZ Telephone No. +31 70 340-		



**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/EP2004/050564

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-29 as originally filed

Claims, Numbers

1-15 received on 24.01.2005 with letter of 18.01.2005

Drawings, Sheets

1/5-5/5 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-15
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-15
Industrial applicability (IA)	Yes: Claims	1-15
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

The following documents are referred to in this communication:

D1: US 2002/004840 A1 (FUJITA TAKAHISA ET AL) 10 January 2002

D2: US-A-5 870 134 (BARAN PAUL ET AL) 9 February 1999

D3: US-A-5 822 524 (HUANG SHIOW-LAANG ET AL) 13 October 1998

- 1 The International Preliminary Examination Authority (IPEA) considers that the subject-matter of claims 1-15 is not inventive in the sense of Art. 33(3) PCT.

1.1 Independent claim 1

Claim 1 is not clear (Art. 6 PCT) in that the expression "so that said server is able to determine at least one size of successive portions of said required data and at least one delay between two successive sending steps of said portions" (lines 22-24) attempts to define the data requesting device by reference to features of the data server (PCT Guidelines, 5.37). Therefore said expression will be disregarded for the evaluation of novelty and inventive step.

Document D1, which is considered to represent the most relevant state of the art, discloses (the references in parenthesis applying to this document), in terms of claim 1:

Data requesting device through at least one first communication network from at least one data server, said data requesting device being able to support up to a maximum bandwidth rate (abstract; par. 117; any data requesting device is "able to support up to a maximum bandwidth rate"), and comprising:

- at least one input buffer having an input buffer size (par. 138; the disclosed "parameter S_max" anticipates the feature "input buffer size"),
- sending means for sending requests of determined data to the server (abstract; par. 121),
- and receiving means for receiving streamed data from said server into said input buffer via said first communication network and for providing said data to processing means for them to be exploited (abstract; fig. 3; par. 122)

whereby said data requesting device comprises retrieving means for retrieving information representative of said input buffer size (par. 138).

The subject-matter of claim 1 differs from what is already disclosed in document D1 in that:

- (i) all data sent from the sending means to the server is sent via a second communication network;
- (ii) the information which is retrieved and sent to the server includes information representative of the maximum bandwidth rate of the data requesting device and of the size of the input buffer.

The invention seems to be a solution to a plurality of independent partial problems, which are, respectively:

- how to send information from a device to the server when the downstream network does not support upstream communications,
- how to inform the server of the terminal capabilities, so that the server can adapt the transmission of the streamed data to the terminal.

There is no functional relationship between both partial problems, and the combined features of points (i) and (ii) do not produce a combined technical effect that is different from the sum of the effects of the respective technical features. Hence the objective technical problem will be regarded as the aggregation of said two partial problems, and therefore it will be assessed for each partial problem whether the combination of features solving the partial problem is obviously derivable from the prior art.

Regarding the first partial problem:

Faced with the first partial problem, the skilled person would come across document D2 (col. 1, lines 15-35), which solves the same partial problem, and also belongs to the field of on-demand data networks, which is the field of the application and of the objective technical problem. The skilled person would therefore regard it as a normal design option to include the additional features of document D2 in the implementation of the VOD system in order to solve the problem posed.

Regarding the second partial problem:

The skilled person, when carrying out the teaching of document D1, would be confronted with a choice from a number of equally likely alternatives regarding the information sent to the server concerning the terminal capabilities (see for example document D1, par. 131-143, 153). Selecting the maximum bandwidth rate and the input buffer size of the data requesting device between said possibilities, which are equally likely alternatives, is obvious and consequently not inventive.

Since it would be obvious for the person skilled in the art to combine the teachings of D1 and D2, and to select the maximum bandwidth rate and the input buffer size of the data requesting device between a number of equally likely alternatives, he would have arrived at the teaching of claim 1 without performing inventive activity. Hence, the subject-matter of claim 1 is not inventive (Art. 33(3) PCT).

1.2 Independent claim 8 is a representation of claim 1 in terms of a method. Therefore claim 8 is also not inventive (Art. 33(3) PCT).

1.3 Independent claim 9

Document D1 discloses (the references in parenthesis applying to this document), in terms of claim 9:

Data transmitting device (abstract; fig. 2; par. 117-120), comprising:

- receiving means for receiving requests of determined data from at least one data requesting device (par. 117, 119),
- specification means for determining at least one size of successive portions of said data to be provided to said data requesting device (par. 134, 175),
- and streaming means for triggering streaming of said data portions to said data requesting device (par. 118, 144), said receiving means being intended to receive from said data requesting device information representative of capacities of said data requesting device (par. 131), and said specification means being intended to determine said portion size in function of said information (par. 134, 175),
- said specification means are intended to determine at least one delay between two successive sending steps of said portions in function of said information (par. 134),
- and said streaming means are intended to periodically trigger streaming of said

data portions having said portion size to said data requesting device, with a period equal to said delay (par. 134, 153, 175).

The subject-matter of claim 9 differs from what is already disclosed in document D1 in that the information received from the data requesting device is representative of the maximum bandwidth rate and the input buffer size of the data requesting device. The selection from a limited number of possibilities of the parameters used to define the capacities of the data requesting device can be arrived at by normal design procedures, and therefore said selection cannot be regarded as inventive.

Hence, the subject-matter of claim 9 is not inventive (Art. 33(3) PCT).

- 1.4 Independent claim 14 is a representation of claim 9 in terms of a method. Therefore claim 14 is also not inventive (Art. 33(3) PCT).
- 1.5 Independent claim 15 covers essentially the same subject-matter of claims 8 and 14 in terms of a computer program product. Therefore claim 15 is also not inventive (Art. 33(3) PCT).
- 2 Dependent claims 2-7, 10-13 do not contain any features, which in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step (see documents D1, D2, D3 and the corresponding passages cited in the search report).
- 3 Regarding the Applicant's arguments filed with the letter of 18.01.2005:
 - 3.1 The Examiner agrees with the Applicant in that the S_target parameter disclosed in document D1 does not anticipate the CSOCKBUFSZ parameter of the invention. It is rather the disclosed S_max parameter (par. 138), which is considered to anticipate the CSOCKBUFSZ parameter.
 - 3.2 The Applicant argues that the technical effect of getting the two parameters of the invention is "to regulate the bit rate according to CBW, while the buffer size is only used to determine a size of portion". However, this argument is not based on actual

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claim language. Even if it was, the claimed subject-matter would still not be inventive, because the invention would still reside on the choice of particular parameters regarding the buffer and processing capabilities of the terminal from a limited range of possibilities, and it is clear that these parameters could be arrived at by the application of normal design procedures.

AMENDED CLAIMS

(68)

1. Data requesting device (2) through at least one first communication network (5) from at least one data server (10), said data
5 requesting device (2) being able to support up to a maximum bandwidth rate (CBW), and comprising:

- at least one input buffer (21) having an input buffer side (CSOCKBUFSZ),
- sending means (22) for sending requests (REQU) of
10 determined data to the server (10) via at least one second communication network (6),
- and receiving means (23) for receiving streamed data (DATA) from said server (10) into said input buffer (21) via said first communication network (5) and for providing said data to processing means (24) for them to
15 be exploited,

characterized in that said data requesting device (2) comprises retrieving means (25) for retrieving information (INFO) representative of said maximum bandwidth rate (CBW) and of said input buffer side (CSOCKBUFSZ), and in that said sending means (22) are intended to
20 transmit to said server (10) via said second network (6) said information (INFO), so that said server (10) is able to determine at least one size (UNIT_SIZE) of successive portions of said required data and at least one delay (PERIOD) between two successive sending steps of said portions.

25 2. Data requesting device (2) according to claim 1, characterized in that it comprises a data pump (27) intended to extract data available in said input buffer (21) and to transfer said data into a central memory (26) for said data to be exploited by said processing means (24), said data pump (27) being able to produce a pause control signal (XOFF) when said data in
30 said central memory (26) exceed a predetermined high threshold level (HFIFO) of said central memory (26), and in that said sending means (22) are intended to transmit said pause control signal (XOFF) to said server (10).

3. Data requesting device (2) according to any of claims 1 or 2, characterized in that said data pump (27) is able to produce a resume control signal (XON) when the data transfer from said input buffer (21) to said central memory (26) has been paused and said data in said central memory (26) decrease down to a predetermined low threshold level (LFIFO) of said central memory (26), and in that said sending means (22) are intended to transmit said resume control signal (XON) to said server (10).

4. Data requesting device (2) according to any of claims 2 or 3, characterized in that it comprises an injector (28) intended to transfer said data from said central memory (26) to said processing means (24) only when said data in said central memory (26) fill up to a predetermined middle threshold level (MFIFO) of said central memory.

5. Data requesting device (2) according to any of claims 2 to 4, characterized in that at least one of said threshold levels (HFIFO, LFIFO, MFIFO) of said central memory (26) depends on a round-trip time (RTT) between said data requesting device (2) and said server (10).

6. Data requesting device (2) according to any of the preceding claims, characterized in that said data requesting device (2) is able to produce pause (XOFF), resume (XON) and seek (SEEK) control signals for respectively pausing and resuming data streaming and for positioning at given appropriate places of said determined data, and said sending means (22) are intended to transmit to said server (10) sequences of successively said pause (XOFF), seek (SEEK) and resume (XON) control signals, so as to allow at least one feature among fast motion and reverse motion.

7. Decoder, characterized in that it comprises a data requesting device (2) according to any of claims 1 to 6.

8. Data requesting process through at least one first communication network (5) from at least one data server (10) to a data requesting device (2) able to support up to a maximum bandwidth rate (CBW) and comprising at least one input buffer (21) having an input buffer side (CSOCKBUFSZ), said requesting process comprising the following steps:

- sending requests (REQU) of determined data to the server (10) via at least one second communication network (6),
- and receiving streamed data (DATA) from said server (10) into said input buffer (21) for them to be exploited,

characterized in that said data requesting process comprises sending information (INFO) representative of said maximum bandwidth rate (CBW) and of said input buffer side (CSOCKBUFSZ) from said data requesting device (2) to said server (10) via said second network (6), so that said server (10) is able to determine at least one size (UNIT_SIZE) of successive portions of said required data and at least one delay (PERIOD) between two successive sending steps of said portions,

said data requesting process being preferably intended to be executed by means of a data requesting device (2) compliant with any of claims 1 to 7.

9. Data transmitting device (1) comprising:

- receiving means (11) for receiving requests (REQU) of determined data from at least one data requesting device (2),
- specification means (12) for determining at least one size (UNIT_SIZE) of successive portions of said data to be provided to said data requesting device (2),
- and streaming means (13) for triggering streaming of said data portions (DATA) to said data requesting device (2),

said receiving means (11) being intended to receive from said data requesting device (2) information (INFO) representative of capacities of said data requesting device (2), and said specification means (12) being intended to determine said portion size (UNIT_SIZE) in function of said information (INFO),

characterized in that:

- said capacities are the maximum bandwidth rate (CBW) and input buffer size (CSOCKBUFSZ) of said data requesting device (2) ;
- said specification means (12) are intended to determine at least one delay (PERIOD) between two successive sending steps of said portions in function of said information (INFO),
- and said streaming means (13) are intended to periodically trigger streaming of said data portions having said portion size (UNIT_SIZE) to said data requesting device (2), with a period equal to said delay (PERIOD),

said data transmitting device (1) being preferably provided for a data requesting device (2) according to any of claims 1 to 6.

10. Data transmitting device (1) according to claim 9, characterized in that said receiving means (11) are intended to receive pause control messages (XOFF) from said data requesting device (2), and said streaming means (13) are intended to pause said data streaming when one of said pause control messages (XOFF) is received.

11. Data transmitting device (1) according to any of claims 9 or 10, characterized in that said data requesting device (2) being able to support up to a maximum bandwidth rate (CBW) and comprising at least one input buffer (21) having an input buffer side (CSOCKBUFSZ), said capacities consist in said maximum bandwidth rate (CBW) and said input buffer side (CSOCKBUFSZ).

12. Data transmitting device (1) according to any of claims 9 to 11, characterized in that said receiving means (11) are intended to receive slow motion messages from said data requesting device (2), and said specification means (12) are intended to determine at least one increased value of said period (PERIOD) when said slow motion messages are received.

13. Data transmitting device (1) according to any of claims 9 to 12, characterized in that said receiving means (11) are intended to receive at least one kind of messages among fast motion and reverse motion messages, from said data requesting device (2), and said data transmitting device (1) comprises parsing means (16) able to identify successive relevant places in said determined data for at least one of said fast and reverse motions, said specification means (12) being provided for successively positioning at said places, when one of said fast motion and reverse motion messages is received.

14. Data transmitting process comprising the following steps:

- receiving requests (REQU) of determined data from at least one data requesting device (2), as well as information (INFO) representative of capacities of said data requesting device (2),
- determining at least one size (UNIT_SIZE) of successive portions of said data to be provided to said data requesting device (2), in function of said information (INFO),
- and streaming said data portions (DATA) to said data requesting device (2),

characterized in that:

- said capacities are the maximum bandwidth rate (CBW) and input buffer size (CSOCKBUFSZ) of said data requesting device (2) ;

- said specification step includes determining at least one delay (PERIOD) between two successive sending steps of said portions in function of said information (INFO),

5 - and said streaming step includes periodically streaming said data portions having said portion size (UNIT_SIZE) to said data requesting device (2), with a period equal to said delay (PERIOD),

10 said data transmitting process being preferably intended to be executed by a data transmitting device (1) compliant with any of claims 9 to 13.

15 15. Computer program product, characterized in that it comprises program code instructions for executing the steps of one of the processes of claims 8 and 14 when said program is executed on a computer.